Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) An ~~Optimized~~ ink jet printhead, for the emission of droplets of ink on a print medium, comprising:

a sublayer of silicon ~~(30)~~,

a structural layer ~~(38)~~ on top of said sublayer of silicon ~~(30)~~, and

a plurality of ~~ejection~~ chambers ~~(42)~~ and ~~of~~ corresponding feeding ducts ~~(56, 50)~~, each chamber ~~(42)~~ containing at least one resistor ~~(39)~~, said structural layer ~~(38)~~ ~~being provided with~~ having a plurality of ejector nozzles ~~(46)~~ communicating with each of said chambers ~~(42)~~ and arranged facing each of said resistors ~~(46)~~, ~~characterized in that~~ wherein each of said chambers ~~(42)~~ ~~and each corresponding feeding duct (56) are~~ is delimited by a flat bottom wall ~~(43)~~ ~~made from a protective layer (32, 34) of said resistors (39),~~ and ~~by~~ an upper wall ~~(44)~~ made of a substantially concave surface~~, including each of said nozzles (46)~~ and joined to said bottom wall along a continuous perimetral line, the bottom wall comprising a protective layer ~~(52), so that the processes of formation and development of an ejection bubble of said ink, generated thermally by each of said resistors (39), are promoted~~.

2. (Currently amended) The ink ~~Ink~~ jet printhead according to claim 1, ~~characterized in that~~ wherein said protective layer ~~(32, 34)~~ is made of a first layer of tantalum ~~(34)~~, facing the inside of said chamber ~~(42)~~, and deposited on top of a second isolating layer ~~(32)~~ of silicon carbide and nitride~~, arranged~~ in contact with said resistors ~~(39)~~.

3. (Currently amended) The ink ~~Ink~~ jet printhead according to claim 2, ~~characterized in that~~ wherein said first layer of tantalum ~~(34)~~ extends substantially beyond the perimetral line and constitutes said bottom wall ~~(43) of said chamber (42) and of said corresponding feeding ducts (56) connected to them, said layer, of tantalum (34) extending substantially beyond said perimetral line (52)~~.

4. (Currently amended) The ink ~~Ink~~ jet printhead according to any of the ~~claims 1, or 2, or 3~~ claim 1, ~~characterized in that~~ wherein said ~~concave~~ upper wall ~~(44)~~ is joined uninterruptedly to ~~said~~ the corresponding feeding duct ~~(56)~~, ~~to~~ said bottom wall ~~(43)~~ and ~~to~~ said nozzle ~~(46)~~.

5. (Currently amended) The ink ~~Ink~~ jet printhead according to claim 1 ~~any of the previous claims~~, wherein ~~characterized in that the inner shape of~~ each of said chambers ~~(42)~~ and ~~of each of said~~ corresponding feeding ducts ~~(56)~~ has an inner shape representing ~~represents the~~ a complementary impression~~, produced in a photosensitive structural layer (38),~~ of a sacrificial layer (57)[,] obtained from a controlled and non-contained growth of a metal~~, deposited starting from~~ on a layer of gold (36), the layer of gold being on top of said layer of tantalum ~~(34)~~.

6. (Currently amended) The ink ~~Ink~~ jet printhead according to claim 5, ~~characterized in that~~ wherein said structural layer ~~(38)~~ covers the ~~is made of an epoxy or polyamide type, negative photoresist, applied on said~~ sacrificial layer~~, covering it~~ completely.

7. (Currently amended) The ink ~~Ink~~ jet printhead according to claim ~~any of the claims from~~ 1 ~~to 4~~, ~~characterized in that~~ wherein the inner shape of each of said chambers ~~(42)~~, ~~of each of~~ said feeding ducts ~~(56)~~ and ~~of each of~~ said nozzles ~~(46)~~ represents ~~the~~ a complementary impression from a sacrificial layer within~~, produced in a photosensitive~~ the structural layer ~~(38a), of a sacrificial layer (57) and respectively of a cast (74),~~ and obtained from a controlled and non-contained growth of a metal~~, deposited starting from~~ on a layer of gold ~~(36)~~, the layer of gold being on top of ~~said~~ a layer of tantalum ~~(34)~~.

8. (Currently amended) The ink ~~Ink~~ jet printhead according to claim 7, ~~characterized in that~~ wherein said structural layer ~~(38a)~~ is made of a non-photosensitive epoxy or polyamide type, negative photoresist, applied on said sacrificial layer ~~(57)~~ and on said cast ~~(74)~~, covering them completely.

9. (Currently amended) The ink ~~Ink~~ jet printhead according to claim ~~5, or~~ 6, ~~characterized in that~~ wherein said sacrificial layer ~~(57)~~ and said layer of gold ~~(36)~~ are removed by

means of an acid bath, to create said chambers ~~(42)~~ and said feeding ducts ~~(56)~~ connected to them.

10. (Currently amended) The ink ~~Ink~~ jet printhead according to ~~any of the claims from 5 to 9~~ claim 5, ~~characterized in that~~ wherein said sacrificial layer ~~(57)~~ is made of electrolytic copper.

11. (Currently amended) The ink ~~Ink~~ jet printhead according to claim 5 ~~10~~, ~~characterized in that~~ wherein said sacrificial layer is made of nickel.

12. (Currently amended) A manufacturing ~~Manufacturing~~ process of an ink jet printhead made on a wafer ~~(27)~~, divided into a plurality of die ~~(20)~~, each ~~of which comprises~~ die comprising a sublayer of crystalline silicon ~~(30)~~, a plurality of thermal actuating elements ~~(39),~~ arranged on said sublayer of crystalline silicon ~~(30)~~, and a protective layer ~~(34,36), made of~~ including a layer ~~(34)~~ of tantalum~~, in turn~~ covered by a layer ~~(36)~~ of gold, ~~characterized by the fact of~~ the process comprising the following steps:

a) chemically activating said layer of gold ~~(36), to promote the start of a subsequent electrodeposition of a metal (57),~~ using a galvanic bath;

b) performing an electrodeposition of ~~said~~ a metal ~~(57)~~ on said layer ~~(36)~~ of gold to make a sacrificial layer ~~(57)~~, obtained from a controlled and non-contained growth~~, both~~ parallel and perpendicular to said layer ~~(36)~~ of gold;

c) applying a photosensitive structural layer ~~(38),~~ entirely covering said sacrificial layer ~~(57)~~;

d) ~~making~~ photoetching a plurality of nozzles ~~(46)~~ through said structural layer ~~(38), using a photoetching process~~;

e) removing said sacrificial layer ~~(57), in a~~ by chemical etching~~, in the form of a highly~~ with an acid bath[,] to produce a plurality of chambers ~~(42) for expulsion of said ink~~ and ~~of~~ corresponding feeding ducts ~~(56) connected to said chambers~~, each of the chambers being delimited internally by a flat bottom wall ~~(43)~~, and a concave upper surface joined uninterruptedly to the bottom wall, the bottom wall including ~~made of said layers of~~ a

tantalum layer ~~(34)~~ and ~~of~~ the layer of gold.~~(36)~~ and ~~by a concave upper surface (44), joined uninterruptedly to said bottom wall (43), said~~ the upper surface ~~(44)~~ representing a complementary ~~and true~~ impression of said sacrificial layer ~~(57)~~.

13. (Currently amended) The process ~~Process~~ according to claim 12, ~~characterized by the fact that~~ wherein step a) is preceded by the following step: f) etching said layer ~~(36)~~ of gold to define a starting area of said electrodeposition~~, correlated to the final dimensions of said ejection chambers (42)~~.

14. (Currently amended) ~~Process according to any of the claims 12, or 13, characterized by the fact that steps c) and d) are replaced by the following steps: g) applying a layer of thick positive photoresist (68), in various passes alternated with intermediate pauses, on top of said sacrificial layer (57),'to obtain improved planarization of the upper surface of said photoresist (68); h) exposing and developing said thick positive photoresist, making holes (70) with an inward flaring ; i) performing a cleaning operation with the Asher method, to eliminate traces of photoresist residue inside said holes (70); m) performing a microetching and activating an oxidized portion (72) of the surface of said sacrificial layer (57), in correspondence with said holes (70); n) reactivating the electrochemical growth of electrolytic copper inside said holes (70), directly on said sacrificial layer (57), to build a cast (74) of said nozzles (70); o) removing said layer of thick positive photoresist (68); p) applying a structural layer of non photosensitive epoxy or polyamide resin (75), entirely covering said sacrificial layer (57), including said cast (74); q) performing planarization of an upper surface (76) of said non photosensitive structural layer (75), uncovering an upper dome (74a) of said cast (74) of copper~~ A manufacturing process of an ink jet printhead made on a wafer divided into a plurality of die, each die comprising a sublayer of crystalline silicon, a plurality of thermal actuating elements arranged on said sublayer of crystalline silicon, and a protective layer including a layer of tantalum covered by a layer of gold, the process comprising the following steps:
a) chemically activating said layer of gold using a galvanic bath;

b) performing an electrodeposition of.a metal on said layer of gold to make a sacrificial layer, obtained from a controlled and non-contained growth parallel and perpendicular to said layer of gold;

c) applying a layer of positive photoresist on top of said sacrificial layer;

d) exposing and developing the positive photoresist to create holes with inward flaring;

e) removing photoresist residue inside said holes;

f) microetching and activating an oxidized portion of the surface of said sacrificial layer, in correspondence with said holes;

g) reactivating electrochemical growth of electrolytic copper directly on the sacrificial layer within the holes to create a cast for said nozzles;

h) removing said layer of positive photoresist;

i) applying a structural layer of non-photosensitive epoxy or polyamide resin over the sacrificial layer and the cast;

j) performing planarization of an upper surface of said non-photosensitive structural layer to uncover an upper dome of said cast of copper; and

k) removing said sacrificial layer by chemical etching with an acid bath to produce a plurality of chambers and corresponding feeding ducts, each of the chambers being delimited internally by a flat bottom wall, and a concave upper surface joined uninterruptedly to the bottom wall, the bottom wall including a tantalum layer and the layer of gold and the upper surface representing a complementary impression of said sacrificial layer.

15. (Currently amended) The process ~~Process~~ according to claim 14, ~~characterized by the fact that~~ wherein said non-photosensitive structural layer ~~(75)~~ is produced with a thickness ~~preferably~~ between 25 and 60 μm.

16. (Currently amended) ~~Process according to claim 12, characterized by the fact that steps c) and d) are replaced by the following steps: r) applying a non photosensitive structural layer (38a) covering the outer surface (58) of said sacrificial layer (57); said non photosensitive layer 38a having a thickness preferably between 10 and 60 4m and being made of a negative, epoxy or polyamide type resin; s) making a plurality of nozzles (46) through said structural layer (38a), using the excimer laser technology~~ A manufacturing process of an ink jet printhead made on a wafer divided into a plurality of die, each die comprising a sublayer of crystalline silicon, a plurality of thermal actuating elements arranged on said sublayer of crystalline silicon, and a protective layer including a layer of tantalum covered by a layer of gold, the process comprising the following steps:

a) chemically activating said layer of gold using a galvanic bath;

b) performing an electrodeposition of a metal on said layer of gold to make a sacrificial layer, obtained from a controlled and non-contained growth parallel and perpendicular to said layer of gold;

c) applying a non-photosensitive structural layer covering the outer surface of said sacrificial layer; said non-photosensitive layer being made of a negative, epoxy or polyamide type resin;

d) making a plurality of nozzles through said structural layer, using an excimer laser; and

e) removing said sacrificial layer by chemical etching with an acid bath to produce a plurality of chambers and corresponding feeding ducts, each of the chambers being delimited internally by a flat bottom wall, and a concave upper surface joined uninterruptedly to the bottom wall, the bottom wall including a tantalum layer and the layer of gold and the upper surface representing a complementary impression of said sacrificial layer.

17. (Canceled)